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CLAIMS

1. A method for processing a signal in a telecommunications system, in which method a sample set is formed (300) from received signals and a set of absolute values is formed (302) from absolute values of sample set elements, **c h a r a c t e r i z e d** by the method comprising:

A) arranging (304) the elements of the absolute value set in the ascending order;

B) setting (306) a threshold value;

C) determining (308) the number of elements of a reference set to be formed;

D) forming (309) a reference set comprising a predetermined number of elements of the absolute value set in the ascending order;

E) computing (310) a reference value by multiplying the mean or median of the reference set by the threshold value;

F) comparing (312) the greatest element of the reference set with the reference value;

G) increasing (316) the number of reference set elements for forming a new reference set when the greatest reference set element is smaller than the reference value;

H) reiterating (309, 310, 312, 314, 316) the preceding steps D to G until a predetermined ending condition is fulfilled;

I) forming (318) an accepted absolute value set and a corresponding sample set by deleting the greatest element from the reference set when the predetermined ending condition is fulfilled.

2. A method according to claim 1, **c h a r a c t e r i z e d** by setting the threshold value according to Rayleigh distribution.

3. A method according to claim 1, **c h a r a c t e r i z e d** by the ending condition being fulfilled when the greatest element of the reference set is greater than the reference value.

4. A method according to claim 1, **c h a r a c t e r i z e d** by estimating the power of the received signal on the basis of the mean of the squares of the absolute values of the elements in the accepted sample set.

5. A method according to claim 1, **c h a r a c t e r i z e d** by estimating the power of the received signal on the basis of the sample set accepted with the Rayleigh distribution method.

6. A method according to claim 1, **c h a r a c t e r i z e d** by the method being used for cancelling the interference of the received signal.

7. A method according to claim 1, **c h a r a c t e r i z e d** by the method being used for separating signal-noise subspaces of the received signal.

8. A method according to claim 1, **c h a r a c t e r i z e d** by the method being used for dividing the received signal into acceptable samples and samples to be rejected.

9. A method according to claims 1 and 3, **c h a r a c t e r i z e d** by there being an odd number of reference set elements;

forming (418) a second reference value by multiplying the threshold value by the mean of the middlemost element and the element preceding it in the absolute value set;

comparing (420) the second greatest element of the absolute value set with the second reference value;

deleting (422) the greatest element from the accepted absolute value set when the greatest element of the accepted absolute value set is greater than the second reference value;

preserving (424) the accepted absolute value set and the accepted sample set corresponding to it when the greatest element of the accepted absolute value set is smaller than the second reference value.

10. A method according to claim 1, **c h a r a c t e r i z e d** by

J) computing (500) sum S of the elements of the accepted absolute value set;

K) computing (502) number P of elements of the accepted absolute value set;

L) receiving (504) the following sample element;

M) forming (506) a third reference value by multiplying the threshold value by the quotient of S and P;

N) setting (508) a forgetting parameter;

O) comparing (510) the absolute value of the sample element with a third reference value;

P) computing (514) a new value of S by multiplying the forgetting parameter by S and by adding the sample element value when the absolute value of the sample element is smaller than the third reference value;

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Q) computing (514) a new value of P by multiplying the forgetting parameter by P and by adding number one when the absolute value of the sample element is smaller than the third reference value;

R) handling (516) the sample value as a deviating sample when the absolute value of the sample element is greater than the third reference value;

S) reiterating (504, 506, 508, 510, 512, 516) the preceding steps L to R a desired number of times or until there are no more sample elements.

11. A method according to claim 10, c h a r a c t e r i z e d by setting the sample element handled as a deviating sample to be zero.

12. A method according to claim 10, c h a r a c t e r i z e d by the forgetting parameter being a value between zero and one.

13. A receiver (200) comprising means (201, 202, 208) for forming a sample set from received signals and means (204, 208) for forming a set of absolute values from the absolute values of sample set elements, c h a r a c t e r i z e d in that the receiver comprises means (204, 208)

A) for arranging the elements of the absolute value set in the ascending order;

B) for setting a threshold value;

C) for determining the number of elements of a reference set to be formed;

D) for forming a reference set comprising a predetermined number of elements of the absolute value set in the order of magnitude;

E) for computing a reference value by multiplying the mean or median of the reference set by the threshold value;

F) for comparing the greatest element of the reference set with the reference value;

G) for increasing the number of reference set elements for forming a new reference set when the greatest reference set element is smaller than the reference value;

H) for reiterating the preceding steps D to G until a predetermined ending condition is fulfilled;

I) for forming an accepted absolute value set and a corresponding sample set by deleting the greatest element from the reference set when the predetermined ending condition is fulfilled.

14. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver comprises means (204, 208) for setting a threshold value on the basis of Rayleigh distribution.

15. A receiver according to claim 13, **c h a r a c t e r i z e d** in that

5   the receiver comprises means (204, 208) for observing that the greatest element is greater than the reference set and for indicating that the ending condition has been fulfilled.

16. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver comprises means (204, 208) for estimating the power of the

10   received signal on the basis of the mean of the squares of the absolute values in the accepted sample set.

17. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver comprises means (204, 208) for estimating the power of the received signal on the basis of the sample set accepted with the Rayleigh

15   distribution method.

18. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver is arranged to cancel interference of the received signal.

19. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver is arranged to separate signal-noise subspaces of the received

20   signal.

20. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver is arranged to divide the received signal into acceptable samples and samples to be rejected.

21. A receiver according to claim 13 and 15, **c h a r a c t e r i z e d**

25   in that there are an odd number of elements in the reference set and that the receiver comprises means (204, 208)

for forming a second reference value by multiplying the threshold value by the mean of the middlemost element and the element preceding it in the accepted absolute value set;

30   for comparing the greatest value of the accepted absolute value set with the second reference value;

for deleting the greatest element from the accepted absolute value set when the greatest element of the accepted absolute value set is greater than the second reference value;

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for preserving the remaining absolute value set and the accepted sample set corresponding to it when the greatest value of the accepted absolute value set is smaller than the second reference value.

22. A receiver according to claim 13, **c h a r a c t e r i z e d** in that the receiver comprises means (204, 208)

J) for computing sum S of the elements of the accepted absolute value set;

K) for computing number P of elements of the accepted absolute value set;

L) for receiving the following sample element;

M) for forming a third reference value by multiplying the threshold value by the quotient of S and P;

N) for setting a forgetting parameter;

O) for comparing the absolute value of the sample element with the third reference value;

P) for computing a new value of S by multiplying the forgetting parameter by S and by adding the sample value when the absolute value of the sample is smaller than the third reference value;

Q) for computing a new value of P by multiplying the forgetting parameter by P and by adding number one when the absolute value of the sample element is smaller than the third reference value;

R) for handling the sample value as a deviating sample when the absolute value of the sample element is greater than the third reference value;

S) reiterating the preceding steps L to R a desired number of times or until there are no more sample elements.

23. A receiver according to claim 22, **c h a r a c t e r i z e d** in that the receiver is arranged to set the sample element handled as a deviating sample to be zero.

24. A receiver according to claim 22, **c h a r a c t e r i z e d** in that the receiver is arranged to set the value of the forgetting parameter between zero and one.